

## Claims

1. A heat exchange unit including an apparatus to remove condensed water, comprising:

5       the heat exchange unit having a hot sink equipped with a heat discharging fan, a cool sink equipped with a cooling fan, and a thermoelectric element disposed between the hot sink and the cool sink; and

          a condensed water-evaporating means for absorbing the condensed water gathered on the cool sink provided within the heat exchange unit and evaporating  
10       the condensed water to the air by the heat of the hot sink.

2. The heat exchange unit as claimed in claim 1, wherein the condensed water-evaporating means is made of capillary fiber.

3. The heat exchange unit as claimed in claim 1, wherein the condensed water-evaporating means comprises:

15       an absorbing part positioned below a cooling fin part of the cool sink;  
          an evaporating part positioned below a discharging part of the hot sink; and  
          a connection part connecting the absorbing part and the evaporating part.

4. The heat exchange unit as claimed in claim 3, further comprising a seating part on which the condensed water-evaporating means is seated.

20       5. The heat exchange unit as claimed in claim 3, further comprising:  
          a condensed water sensor disposed in the absorbing part of the condensed water-evaporating means;

          a temperature sensor disposed in the evaporating part;

          a heater disposed in the evaporating part; and

25       a control part driving the heater according to signals from the condensed water sensor and the temperature sensor.

6. The heat exchange unit as claimed in claim 3, wherein the cooling fin part of the cool sink is comprised of annular pipe-shaped cooling fins.

7. The heat exchange unit as claimed in claim 6, wherein the annular pipe-shaped cooling fin part is wound by wires.  
30

8. The heat exchange unit as claimed in claim 6, wherein the annular pipe-shaped cooling fin part comprises a plurality of partitions.

9. The heat exchange unit as claimed in claim 1 or 2, further comprising a case and a cover, wherein the cover has a plurality of passing holes.

5        10. A heat exchange unit including an apparatus to remove the condensed water, comprising:

        a case having internally a horizontal partition in the middle thereof;

        a cover covering the top of the case;

        a power supplying unit disposed in the internal partition of the cover; and

10        the heat exchange unit disposed below the partition inside the case,

        wherein the heat exchange unit includes a hot sink equipped with a heat discharging fan, a cool sink equipped with a cooling fan and a thermoelectric element disposed between the hot sink and the cool sink.

        11. The heat exchange unit as claimed in claim 10, further comprising a  
15        condensed water-evaporating means for absorbing the condensed water gathered on the cool sink and evaporating the condensed water to the air by the heat of the hot sink.

        12. The heat exchange unit as claimed in claim 11, wherein the condensed water-evaporating means is made of capillary fiber.

20        13. The heat exchange unit as claimed in claim 11, wherein the condensed water-evaporating means comprises:

        an absorbing part positioned below a cooling fin part of the cool sink;

        an evaporating part positioned below a discharging part of the hot sink; and

        a connection part connecting the absorbing part and the evaporating part.

25        14. The heat exchange unit as claimed in claim 13, further comprising a seating part on which the condensed water-evaporating means is seated.

        15. The heat exchange unit as claimed in claim 13, further comprising:

        a condensed water sensor disposed in the absorbing part of the condensed water-evaporating means;

30        a temperature sensor disposed in the evaporating part;

a heater disposed in the evaporating part; and  
a control part driving the heater according to signals from the condensed water sensor and the temperature sensor.

16. The heat exchange unit as claimed in claim 13, wherein the cooling fin part comprises annular pipe-shaped cooling fins.

17. The heat exchange unit as claimed in claim 16, wherein the annular pipe-shaped cooling fin part is wound by wires.

18. The heat exchange unit as claimed in claim 16, wherein the annular pipe-shaped cooling fin part comprises a plurality of partitions.

19. The heat exchange unit as claimed in claim 10, further comprising heat insulating members respectively in the lower part and the side part of the partition of the case,

wherein the cover is formed with multiple passing holes.

20. The heat exchange unit as claimed in claim 10, further comprising a communicating pipe by which the power supplying unit and the heat discharging fan are allowed for communication with each other.

21. The heat exchange unit as claimed in claim 10, wherein the hot sink is formed with a plurality of projected heat insulating parts on which the thermoelectric element is seated.

22. The heat exchange unit as claimed in claim 10, wherein a heat insulating spacer is disposed between the hot sink and the cool sink.

23. The heat exchange unit as claimed in claim 22, wherein the heat insulating spacer is formed with a screw shaft to be engaged with the hot sink, and a screw hole on the other side into which a bolt inserted into the cool sink is engaged.

24. The heat exchange unit as claimed in claim 22, wherein securing holes on which the heat insulating spacer is seated are formed on the hot sink and the cool sink.

25. The heat exchange unit as claimed in claim 10, wherein the heat insulating member is disposed between the hot sink and the cool sink.